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EXAMINER

LUU, THANH X

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 01/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/047,454

Applicant(s)

KLEY, VICTOR B.

Examiner

Thanh X Luu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) 43-47 and 49-54 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19, 21-38 and 48 is/are rejected.
- 7) ☒ Claim(s) 20 and 40-42 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's election without traverse of Group I, claims 1-42 and 48 in Paper No. 7 is acknowledged. Non-elected claims 43-47 and 49-54 are withdrawn from consideration.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

3. Claim 23 and 48 are objected to because of the following informalities:

In claim 23, there should be a period, ".", at the end of the claim.

Claim 48 is identical to claim 18.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 30-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 30, "said holding means", "said base", "said cantilever" and "said tunneling current mode" lack proper antecedent basis.

In claims 33 and 36-38, "said holding means" lacks proper antecedent basis.

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Claims 31, 32, 34 and 35 are indefinite by virtue of their dependency on an indefinite claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

7. Claims 1, 3, 5, 13 and 19, are rejected under 35 U.S.C. 102(b) as being anticipated by Takase et al. (U.S. Patent 5,138,159).

Regarding claims 1, 3, 5, 13 and 19, Takase et al. disclose (see Figures 1 and 1A) a scanning probe microscope assembly for examining an object (38), comprising: a probe (20) having a tip with a sharp end; means for inducing and detecting (30, 46, 48, 49) non-optical interaction of the tip and the object; a light source (12) optically coupled to the tip for providing light to the tip; the tip being shaped to emit the provided light at the sharp end so that the emitted light optically interacts with the object; and a photodetector (44) for detecting light resulting from the emitted light optically interacting with the object. Takase et al. further disclose (see Figure 1) the non-optical interaction inducing and detecting means includes means for inducing and detecting a tunneling

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current between the tip and the object. Takase et al. also disclose (see Figure 1) the tip has a base (further end of tip); and the scanning probe microscope assembly further comprises a lens (14 or 18) disposed over the tip and optically coupled between the light source (12) and the tip (sharp end of 20) for focusing the provided light in the base of the tip. In addition, Takase et al. disclose (see Figure 1A) the tip includes a core material (20) transparent to the provided light and an obdurate layer or light emissive coating (26) transparent to the provided light over the core material at least at the sharp end. That is, the since light passes though the transparent coating, light is emissive from it.

8. Claims 1, 2, 4 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Muramatsu et al. (U.S. Patent 6,229,609).

Regarding claims 1, 2, 4 and 9 Muramatsu et al. disclose (see Figures 16 and 22) a scanning probe microscope assembly for examining an object (37), comprising: a probe (4) having a tip with a sharp end; means for inducing and detecting (30-33, 39-43) non-optical interaction of the tip and the object; a light source (34) optically coupled to the tip for providing light to the tip; the tip being shaped to emit the provided light at the sharp end so that the emitted light optically interacts with the object; and a photodetector (38) for detecting light resulting from the emitted light optically interacting with the object. Muramatsu et al. further disclose (see Figure 22) the probe includes a cantilever connected to the tip; and the non-optical interaction inducing and detecting means includes (30-33, 39-43) means for inducing atomic force interaction between the tip and the object and for detecting deflection of the cantilever due to the atomic force

interaction. In addition, Muramatsu et al. disclose (see column 12, lines 65-67) a spectrophotometer including the light source and the photodetector for making spectrophotometric (in different wavelengths) measurements of the resulting light. Muramatsu et al. also disclose (see Figure 16) the tip is shaped to capture the resulting light; and the photodetector (38) is optically coupled to the tip for detecting the captured light.

9. Claim 29 is rejected under 35 U.S.C. 102(e) as being anticipated by Theodore et al. (U.S. Patent 5,338,932).

Regarding claim 29, Theodore et al. disclose (see Figure 1) a scanning probe microscope assembly for examining an object (30), the scanning probe microscope assembly having a tunneling current mode and an atomic force mode (see column 2, lines 10-11), the microscope comprising: a probe having a base (13), a cantilever (12) connected to the base, and a tip (14) connected to the cantilever; tunneling current means (16, 29) for inducing and detecting a tunneling current between the tip and the object during the tunneling current mode; and atomic force means (26, 27, positioning means (not shown)) for inducing atomic force interaction between the tip and the object and for detecting deflection of the cantilever due to the atomic force interaction during the atomic force mode; and holding means (15, 17, 18) for holding the cantilever rigid with respect to the base during the tunneling current mode (see also column 3, lines 55-60).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

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obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 6-8, 10-12, 14-18 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takase et al.

Regarding claims 6-8, Takase et al. disclose the claimed invention as set forth above. Takase et al. do not specifically disclose the type of lens. However, the choosing between particular type of lenses requires only routine skill in the art and is a matter of design choice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a fresnel lens formed in the probe over the tip or a refractive lens in the apparatus of Takase et al. to provide a desired result.

Regarding claims 10-12, Takase et al. disclose the claimed invention as set forth above. Takase et al. also disclose detection by transmission and using an optical fiber to guide light. Takase et al. do not specifically disclose the lens also directing light towards the detector as in a reflective type detector. However, transmission and reflective detection is well known in the art. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the lens to direct light to the detector in reflection in the apparatus of Takase et al. to provide a more compact configuration.

Regarding claims 14-18 and 48, Takase et al. disclose the claimed invention as set forth above. Takase et al. do not specifically disclose the type of obdurate material as claimed. However, the choosing between particular type of material requires only

routine skill in the art and is a matter of design choice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the claimed materials in the apparatus of Takase et al. to provide a desired hardness or result.

12. Claims 30-38, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Takase et al. in view of Theodore et al.

Regarding claims 30-35, Takase et al. disclose the claimed invention as set forth above. Takase et al. do not specifically disclose a clamping means as claimed. Theodore et al. teach (see Figure 1) clamping means (11, 13, 15, 17, 18) to hold a probe rigid during a tunneling current mode as claimed. Thus, Theodore et al. recognize that improved tunneling current measurement can be achieved with a more rigid probe. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a clamping means as claimed in the apparatus of Takase et al. in view of Theodore et al. to improve detection.

Regarding claims 36-38, Takase et al. disclose the claimed invention as set forth above. Takase et al. do not specifically disclose the specific holding means including coils as claimed. Theodore et al. disclose (see Figure 1) electrostatically holding the probe rigid in a tunneling mode. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use magnetic forces or any other type of electromagnetic force to hold the probe rigid in the apparatus of Takase et al. in view of Theodore et al. as desired to improve detection.

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13. Claim 39, as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Theodore et al. in view of Muramatsu et al.

Regarding claim 39, Theodore et al. disclose the claimed invention as set forth above. Theodore et al. do not specifically disclose the spectrophotometer as claimed. Muramatsu et al. teach (see Figures and column 12, lines 65-67) a spectrophotometer including the light source and the photodetector for making spectrophotometric (in different wavelengths) measurements of the resulting light. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a spectrophotometer in the apparatus of Theodore et al. in view of Muramatsu et al. to provide additional detection and improve the device.

Double Patenting

14. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

15. Claim 29 is rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 24 of prior U.S. Patent No. 6,265,711. This is a double patenting rejection.

16. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225

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USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

17. Claims 1-3, 5, 21-28 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 5-7, 14-20 and 22 of U.S. Patent No. 6,265,711. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present claims are either a broader version of the patented claims or a rewording of the patented claims. For instance, claim 1 of the present invention is simply claim 5 of the '711 patent without the lens element. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to not include a lens in the apparatus of the '711 patent to reduce costs as desired.

Allowable Subject Matter

18. Claims 20 and 40-42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-


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0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta, can be reached on (703) 308-4852. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl
January 6, 2003



Thanh X. Luu
Patent Examiner